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THE GENUS PALMORCHIS

BY

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THE HISTORY of the genus *Palmorchis* is not only interesting but instructive. In 1877, this genus, including two species, *P. pubescens* and *P. sobralioides*, both natives of Brazil, was proposed by Barbosa Rodrigues.

In 1898, R. A. Rolfe published *Jenmania* typified by *Jenmania elata*, a plant of Trinidad and British Guiana. In the same year, Zahlbruckner changed the name *Jenmania* to *Rolfea* in honor of Rolfe, because the name *Jenmania* was preoccupied by that of a lichen.

In the original diagnosis of *Jenmania elata*, Rolfe compared it with the genus *Palmorchis* and considered it to be distinct. However, in view of a later published figure and description of *Rolfea elata* (Hook. Icon. Pl. 10, pt. 4 (1913) t. 2989), the separation of these two concepts seems to us unjustifiable.

In a comparison between the description of *Palmorchis pubescens* and of *Rolfea elata*, the only significant differences appear to be that in *Palmorchis* the petals are described and illustrated as being slightly broader than the sepals and the clinandrium as being provided on each side with a small tooth—characters which do not appear in *Rolfea*.

In 1901, Cogniaux referred the two species described under *Palmorchis* to *Sobralia* naming them *S. pubescens* and *S. Rodriguesii*. It seems to us inconceivable, how-

ever, that these two small-flowered plants, strikingly distinguished by having the disc of the lip strongly adnate to the lower part of the column, should be included in *Sobralia* which commonly has large flowers and a lip which is entirely free from the column. In his description of *Sobralia pubescens*, however, Cogniaux did much toward clarifying our problem, not only by amplifying the original description of *Palmorchis pubescens*, but even more by including a floral analysis of the plant.

In 1920, Schlechter proposed the concept *Neobartlettia*. Despite its characterization of being different in habit from *Rolfea* and having a lip which is free from the column, the genus actually shows in its component species a habit very similar to *Rolfea*, as well as to the other members of the *Palmorchis* group, and a lip of which the disc is always distinctly adnate to the lower part of the column. In fact, this adnation is quite evident in a flower taken from an isotype of *Neobartlettia Kuhlmannii* Schltr., and such adnation is specified in the original description of *N. lobulata* Mansf.

Palmorchis (as we understand it) is a small genus of orchids thus far consisting of only six species centering in northern South America and extending to Trinidad and Panama.

In vegetative appearance this genus resembles *Corymborchis* and *Tropidia*, but is readily separated from them by the adnation of the lower part of the disc of the lip to the column. This adnation of the lip to the column recalls the structure of the flowers in the genus *Vanilla*; however, the habit of *Palmorchis* and *Vanilla* is very dissimilar.

According to Pfitzer's systematic key to the Orchidaceae (in Engler and Prantl Die Natürlichen Pflanzenfamilien), *Palmorchis* is in part referable to the Tropidieae (containing *Tropidia* and *Corymborchis*). In the structure

of the column, however, this genus is widely divergent from the *Tropidieae*. In *Palmorchis* the anther is not erect on the back of the column, nor are the pollinia distinctly powdery as in the *Tropidieae*; but the anther is incumbent lying on the rostellum on the anterior face of the column and the pollinia appear to be more or less waxy or at least not readily pulveraceous.

According to Schlechter (Das System der Orchidaceen, in Notizbl. Bot. Gart. Berlin 9 (1926) 563), the genera *Rolfea* and *Neobartlettia* [= *Palmorchis*] fall into the *Polychondreae* (with soft, granular pollinia) and then into the subtribe *Tropidieae*. In this treatment, Schlechter makes the error of including the concepts *Rolfea* and *Neobartlettia* (with incumbent anthers) in the group with *Tropidia* and *Corymborchis* which have erect anthers. Of even more basic importance, it seems to us, the concept *Palmorchis*, as represented by *Rolfea Powellii*, has pollinia which are not powdery as in the *Tropidieae* but are somewhat waxy or at least not readily pulveraceous. On this basis, following Schlechter's system, the genus *Palmorchis* should be referred to the tribe *Kerosphaereae* and then to the subtribe *Liparideae*. But obviously the genera of the *Liparideae* are widely dissimilar to the concept *Palmorchis*.

In 1937, Mansfeld (Über das System der Orchidaceae-Monandreae, in Notizbl. Bot. Gart. Berlin 13, p. 666) excluded *Rolfea* and *Neobartlettia* from the *Tropidiinae* (or *Tropidieae*). He placed them in the tribe *Kerosphaereae*, and then with some uncertainty in the subtribe *Sobraliinae*.

It thus appears that, whatever system of classification we attempt to use, *Palmorchis* occupies an uncertain position. The genus seems to stand alone and we propose for it the subtribal name *Palmorchideae* to be placed in the proximity of the *Liparideae*.

The scarcity of herbarium material in this genus has made it difficult to arrive at satisfactory conclusions concerning the specific delimitations of some of the concepts.

Palmorchis *Rodrigues* Gen. & Sp. Orch. Nov. 1 (1877) 169.

Jenmania Rolfe in Kew Bull. 1898: 198, non Wächter in Flora 84 (1897) 349.

Rolfea Zahlbruckner in Journ. Bot. 36 (1898) 493.

Neobartlettia Schlechter in Fedde Repert. 16 (1920) 440.

Perianth campanulate or connivent. Sepals and petals similar, oblanceolate or oblong-oblanceolate (petals rarely linear). Lip much broader than the other segments, more or less distinctly 3-lobed above the middle or at the apex, adnate to the lower part of the column by the central part of the disc; disc pilose or glabrous, adorned with thickened nerves or calli. Column long and slender, arcuate above; clinandrium short, concave; rostellum short, convex; stigmatic orifice transversely oval. Anther terminal, opercular, incumbent, hemispheric-conic, 2-celled. Capsule slender, elongate, terete, with the column persistent.—Tall, terrestrial, caespitose herbs with the habit of *Corymborchis*. Leaves several, elliptic or elliptic-lanceolate, plicate with several prominent nerves. Inflorescence terminal or lateral or both, either racemose or paniculate.

KEY TO THE SPECIES AT PRESENT RECOGNIZED

Flowers more than 1.5 cm. long

Mid-lobe of the lip minute, triangular-ovate; disc with 4 tubercles toward the apex 6. *P. sobralioides*

Mid-lobe of the lip conspicuous, transverse, retuse or bilobed; disc without tubercles

Flowers about 1.7 cm. long; disc of lip with 5 longitudinal lamellae 4. *P. Powellii*

Flowers about 2 cm. or more long; disc of lip with 3 central thickened nerves, at least above 5. *P. pubescens*

Flowers less than 1.2 cm. long

Mid-lobe of the lip obovate-reniform, retuse or bilobed and apiculate
late 3. *P. pandurata*

Mid-lobe of the lip triangular or ligulate, entire

Disc of the lip round-obovate in outline; mid-lobe narrowly ligulate 1. *P. guianensis*

Disc of the lip cuneate with a subtruncate apex; mid-lobe broadly triangular 2. *P. lobulata*

1. ***Palmorchis guianensis*** (*Schltr.*) *Schweinfurth* & *Correll comb. nov.*

Neobartlettia guianensis Schlechter in Fedde Repert. 16 (1920) 441.

Neobartlettia Kuhlmannii Schlechter in Beihefte Bot. Centralbl. 42, Abt. 2 (1925) 76.

The only notable difference between *Neobartlettia Kuhlmannii*, of which we have seen an isotype, and *N. guianensis*, represented by apparently authentic material, consists in the shorter and narrower leaves of *N. Kuhlmannii*. In the flowers of the latter concept, the column is glabrous (as described in *N. guianensis*) and not pilose in front as stated for *N. Kuhlmannii*. Also, the mid-lobe of the lip is carinate-thickened, as described in *N. guianensis*. This species is found in British Guiana and Brazil.

2. ***Palmorchis lobulata*** (*Mansf.*) *Schweinfurth* & *Correll comb. nov.*

Neobartlettia lobulata Mansfeld in Notizbl. Bot. Gart. Berlin 10 (1928) 237.

This species is closely allied to *P. guianensis* and, when additional material becomes available, it may prove to be conspecific. It is found in Peru and Colombia.

3. ***Palmorchis pandurata*** *Schweinfurth* & *Correll* *sp. nov.*

Herba caespitosa, robusta. Radices fibratae, valde tomentosae. Caules in parte inferiore vaginis cylindraceis arctis omnino obtecti, in parte superiore laxe foliati. Folia plura, elliptica vel oblongo-elliptica, acuminata, submem-

branacea, nervis pluribus conspicuis praedita, laminis infimis et supremis multo minoribus. Inflorescentia terminalis, leviter paniculata. Pedunculi pars inferior gracilis, flexuosa; pars superior dense pluriflora, bractea oblongo-elliptica subtenta. Bracteae oblongo-lanceolatae, nervosae, patentes. Flores parvi. Sepalum dorsale anguste oblanceolato-oblongum, naviculare, subobtusum. Sepala lateralia lineari-oblanceolata, obliqua, valde navicularia, acuta, dorso carinata. Petala falcato-linearia. Labellum columnae basi alte adnatum, in laminam obovato-panduratum expansum; lamina leviter trilobata; lobi laterales complanato-semiobovati, antice subacuti; lobus intermedius obovato-reniformis, valde retusus cum apiculo; discus callo U-formi crasso ornatus. Columna gracilis, superne leviter arcuata, glabra, antice concava.

Plant caespitose, coarse, glabrous, with numerous long fibrous roots which are densely tomentose, 6 dm. tall. Stem robust, terete, up to 3.9 dm. long, 4–5 mm. in diameter, provided below with scarious appressed tubular sheaths, loosely 4- or 5-leaved above. Leaves large, elliptic or elliptic-oblong, acute or shortly acuminate, conspicuously 9- to 13-nerved, up to 27.5 cm. long and 8 cm. wide, the lowermost and uppermost often much smaller, plicate, submembranaceous, abruptly tapering into the sheathing petioles of which the bases are imbricating. Inflorescence terminal, lax and flexuous, up to 10 cm. long; peduncle filiform, provided above the middle with a narrowly lanceolate foliaceous bract which is up to 5.6 cm. long; flowers dense, more or less paniculate. Floral bracts ovate to oblong-lanceolate, shortly acuminate, concave, membranaceous, with five or more conspicuous light brown nerves, 8–12 mm. long, 2–3 mm. wide below the middle. Flowers small. Dorsal sepal narrowly oblanceolate-oblong, subobtuse, navicular especially above, dorsally carinate with the keel sparingly ciliate, 5-nerved,

with cross-veins above the middle, about 7.5 mm. long and 1.5 mm. wide. Lateral sepals narrowly and obliquely oblanceolate-oblong, subobtuse, strongly navicular especially above, dorsally carinate with the sparingly ciliate keel broadened near the apex and extending as an apicule, 5-nerved, with cross-veins above the middle, 6.6–7 mm. long, about 1.5 mm. wide near the apex. Petals linear-falcate, subacute to shortly acute, 3-nerved, with a few cross-veins near the apex, about 6.5 mm. long. Lip adnate to the column by a thickened mid-nerve for almost one third the length of the lamina, obovate-pandurate in outline from a narrowly cuneate pubescent base, 6.6 mm. long; lateral lobes shallowly semiobovate, subacute in front with the anterior margins fleshy-thickened, the lower margins ciliate, upturned and clasping the column in natural position, about 3 mm. wide across the lobes when spread out; mid-lobe obovate-reniform, retuse or bilobed and apiculate with the lobes spreading and irregularly erose-ciliate, about 3 mm. wide; disc pubescent at the base, with conspicuously branching veins above, provided in the constricted portion with a U-shaped fleshy callus and a more or less distinct fleshy thickening between the lateral arms of the callus. Column slender, glabrous, with two narrow lateral wings on the anterior surface, somewhat arcuate above, about 6 mm. long; anther terminal, semiorbicular-conic, incumbent, operculate with a slender hinge, 2-celled.

In regard to the flowers, *Palmorchis pandurata* has a lip resembling in size that of *P. guianensis* but in outline the lip suggests that of *P. pubescens*.

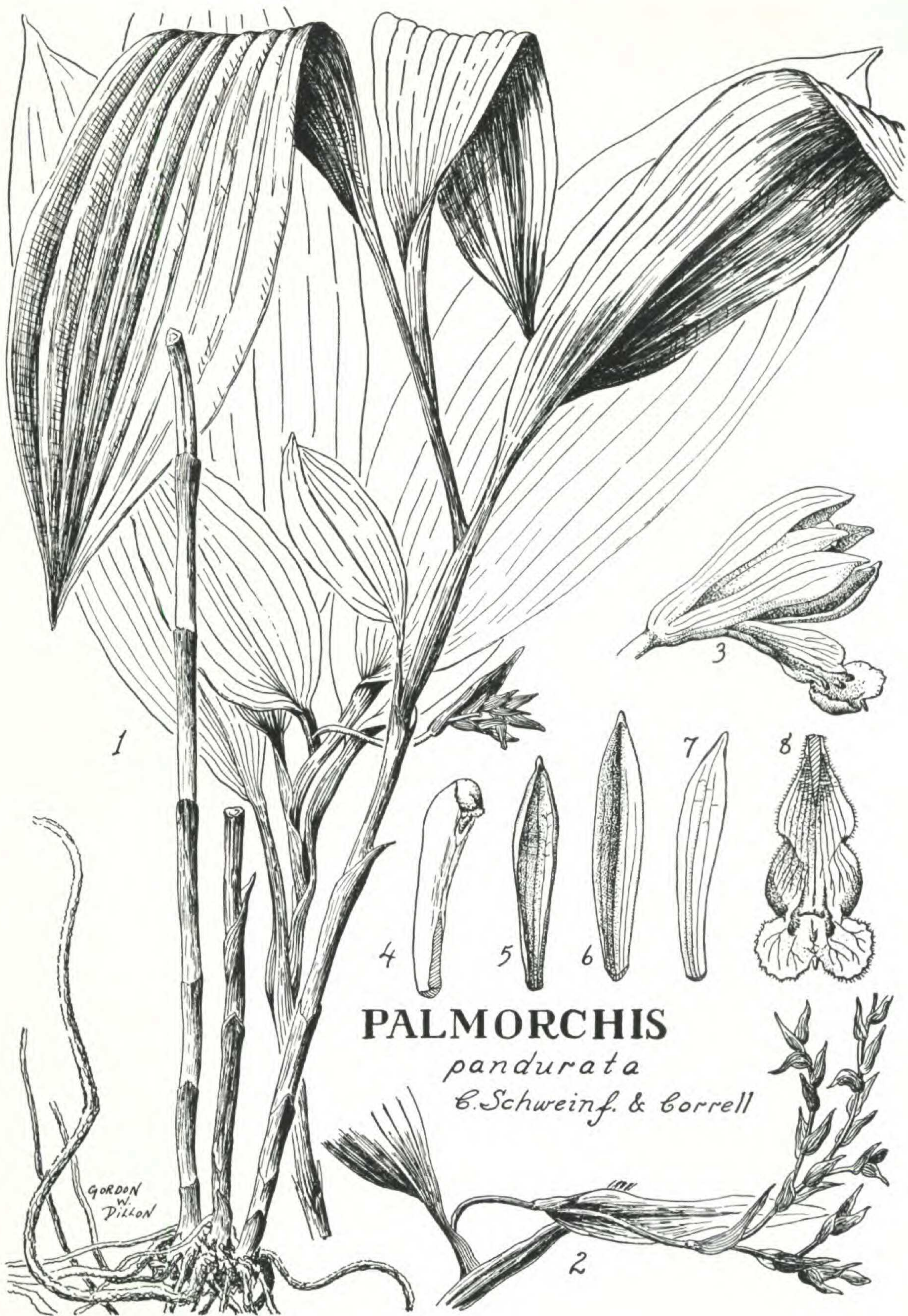
TROPICAL AMERICA: S. Joseito¹, Lehmann B.T. 48 (TYPE in Herb. Gray No. 2083; ISOTYPE in Herb. N.Y. Bot. Gard.).

¹The exact location of this place could not be ascertained. However, we did learn from authorities in Colombia that the place is not in that country.

EXPLANATION OF THE ILLUSTRATION

PALMORCHIS PANDURATA *C. Schweinf. & Correll.* 1, plant, one half natural size. 2, inflorescence, three fourths natural size. 3, flower, from side, five times natural size. 4, column, from side, five times natural size. 5, lateral sepal, five times natural size. 6, dorsal sepal, five times natural size. 7, petal, five times natural size. 8, lip, expanded, five times natural size.

Drawn February 1940 by G.W. DILLON



PALMORCHIS

pandurata

C. Schweinf. & Correll

4. **Palmorchis Powellii** (*Ames*) *Schweinfurth* & *Correll comb. nov.*

Rolfea Powellii Ames in Sched. Orch. 7 (1924) 32, fig. 6.

This species is readily distinguished from *Palmorchis pubescens*, to which it is most closely allied, by its smaller stature, smaller flowers and 5-lamellate lip. It is found in Panama.

5. **Palmorchis pubescens** (as *pubescentis*) *Rodrigues* Gen. & Sp. Orch. Nov. 1 (1877) 170.

Jenmania elata Rolfe in Kew Bull. 1898: 198.

Rolfea elata Zahlbruckner in Journ. Bot. 36 (1898) 493.

Sobralia pubescens Cogniaux in Martius Fl. Bras. 3, pt. 5 (1901) 347, t. 73, fig. 2.

This species, which is the type of the genus, is the largest and most robust plant of the group, both vegetatively and florally. It is found in Trinidad, British Guiana and Brazil.

According to Rodrigues, this species is commonly known by the natives as *Baunilhasinha*, Little Vanilla.

6. **Palmorchis sobralioides** (as *Sobralioidis*) *Rodrigues* Gen. & Sp. Orch. Nov. 1 (1877) 170.

Sobralia Rodriguesii Cogniaux in Martius Fl. Bras. 3, pt. 5 (1901) 340.

Neobartlettia sobralioides Schlechter in Fedde Repert. 16 (1920) 441.

This species is characterized by its narrowly triangular-obovate lip which is about 12 mm. long and 8 mm. wide. It is lightly 3-lobed above with a short triangular-ovate mid-lobe. It is found in the province of Para, Brazil.